Summer Internship Report

at

Fortis Escorts Heart Institute, New Delhi

(May 1st to July 2nd, 2025)

A Report

Byss

Minal Kesarwani

Mentor. Dr. Preetha GS

PGDM (Hospital and Health Management)

2024-2026

International Institute of Health Management Research, New Delhi

Fortis Escorts
HEART INSTITUTE

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A NABH Accredited Institute

July 02, 2025

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Miss Minal Kesarwani** has successfully completed her internship in **Medical Admin (Quality) Department** at Fortis Escorts Heart Institution, New Delhi during the period from **May 01, 2025 to July 02, 2025.**

For **FORTIS ESCORTS HEART INSTITUTE**

Shruti Kumari

Stuti Sardana
Manager
Human Resource

IIHMR DELHI

Completion of Summer Internship

Fortis Escorts Heart Institute, New Delhi

The certificate is awarded to

Minal Kesarwani

In recognition of having successfully completed her internship in the department

Medical Administration

and has successfully completed her Project on

"Medication Error"

from 5th of May to 4th of July'25

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish her all the best for future endeavors.

Poulami Banerjee
Organization Supervisor

Shruti Kumari
Head-HR/Department Head

Certificate of Approval

The Summer Internship Project of titled "An Audit to Identify and Analyse Medication Error In Critical and Non- Critical Areas" at "Fortis Escorts Heart Institute, Okla, New Delhi" is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of Post Graduate Diploma in Health and Hospital Management for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed, or conclusion drawn therein but approve the report only for the purpose it is submitted.

Dr. Preetha G.S.
Professor & Dean
Research
IIHMR, Delhi

FEEDBACK FORM

Name of the Student: Minal Kesarwani

Summer Internship Institution: Fortis Escorts Heart Institute, Okhla, New Delhi

Area of Summer Internship: Medical Administration

Attendance: Always punctual, disciplined regular and sincere in reporting duties

Objectives met:

- Understood Function of Hospital Medical Administration.
- Learned about NABH Guidelines & Compliance Process.
- Gained Knowledge of Patient safety Protocols & Quality Documentation Practices.
- Showed active interest in understanding electronic medical records and hospital IT systems

Deliverables:

Successfully Completed & Submitted report for

- Medication Error
- Medication Management Audit
- NIV Clinical Audit

Assisted in the implementation of NABH 6th standard in various departments.
Identified Operational and documentation gaps and recommended areas for improvement

Strengths:

- Effective Communicator with Good Interpersonal and Teamwork skills.
- Maintained the Discipline Attitude towards her work throughout the Internship.
- Adaptability and willingness to learn.
- Ability to Multitask and manage workload efficiently.

Suggestions for Improvement:

- Explore training/Certification in Quality Tools (Six Sigma, NQAS (National Quality Assurance Standards), for added Expertise.
- Build on existing strengths to take on more responsibilities
- Enhance time management skills to prioritize tasks more effectively
- Continue to develop critical thinking skills to tackle complex challenges
- Gain Deeper hand on Experience in hospital IT system.

2/7/25

Signature of the Officer-in-Charge (Internship)

Date: 02/07/25
Place: New Delhi

FEEDBACK FORM

(IIHMR MENTOR)

Name of the Student: Minal Kesarwani

Summer Internship Institution: Fortis Escorts Heart Institute, Okhla, New Delhi

Area of Summer Internship: Medical Administration

Attendance: 100%

Objectives met:

Deliverables:

Strengths: Hardworking, Organized, Keen to learn.

Suggestions for Improvement: Participate in class activities

Signature of the Officer-in-Charge (Internship)

Date:
Place:

Outlook

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PREFACE

This report captures my transformative internship experience as a PGDM student within the Quality Department at Fortis Escorts. This opportunity has provided me with crucial insights into how quality management systems operate in a leading healthcare environment. During my time there, I engaged in clinical audits, compliance monitoring, and patient safety protocols, all of which greatly enriched my academic learning. This hands-on experience helped me understand the important role that quality management plays in providing efficient and safe healthcare services. I am very thankful for the constant support and guidance from both Fortis Escorts and my mentors, as they truly made this journey worthwhile.

ACKNOWLEDGEMENTS

I want to express my heartfelt gratitude to everyone at Fortis Escorts Heart Institute in New Delhi for the amazing chance I had to do my summer internship in the Quality Department. I'm especially thankful to Dr. Amrita Gupta, the Medical Director, for making this experience possible and for being so supportive of my personal growth. I also want to give a big thank you to my mentor, Mrs. Poulami Banerjee, who leads the Quality Department. Her guidance and encouragement were invaluable during my time there. I would like to take a moment to Thank the following people for their help and contributions:

- Dr. Hitesh Sharma, Head of Clinical Pharmacology

- Dr. Mrinal Sharma, Deputy Medical Superintendent

- Dr. Sandhya Choubey, Assistant Medical Superintendent

- Mr. Abdul Ahad, Assistant Supervisor, Clinical Research

The collaboration, knowledge, and unique perspectives they brought enhanced my learning journey and helped me understand quality management and healthcare operations on a deeper level. I want to take a moment to thank Preetha G.S. from IIHMR, Delhi. Her constant support and wise advice have been crucial for me on this journey.
A huge thank you to my friends and colleagues, Dr. Abhikansha Singh and Dr. Aastha Sinha, for their exceptional teamwork and support throughout our project work. This journey has been both enjoyable and enriching because of you.

I'm genuinely thankful to everyone who contributed to making this experience truly special!

Warm regards,

Minal Kesarwani

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ABBREVATION

FEHI	Fortis Escort Heart Institute
NABH	National Accreditation Board for Hospital and Healthcare Providers
WHO	World Health Organisation
ICŪ	Intensive Care Unit
MAR	Medication Administration Record
EMR	Electronic Medical Records
SOP	Standard Operating Procedure
NIV	Non-Invasive Ventilator
MoM	Medication Management

OBSERVATIONAL LEARNING

Fortis Escorts
HEART INSTITUTE

INTRODUCTION TO FORTIS

Fortis Escorts on Okhla Road is a large multi-speciality hospital boasting 310 beds and is located in the heart of New Delhi, with world-class facilities and operations. By integrating highly skilled experts with technology, it not only improved the quality of cardiological service but also has revolutionised cardiac care by providing comprehensive emergency cardiac care to all patients. With a team of highly experienced medical practitioners and paramedical staff, the hospital also boasts Padma Shri and Padma Bhushan awardees, making it one of the premier healthcare institutions.

An expert in advanced cardiac care, Fortis Escorts is proficient in complicated angioplasties, Transcatheter Aortic Valve Implantation (TAVI), Basic and Complex coronary interventions, electrophysiology and paediatric/adult cardiac surgeries, comprehensive non-invasive cardiac programmes, AICD, CRTD, adult and paediatric VADs, heart transplants, and endovascular/open heart surgeries. In addition to heart health, the hospital specialises in GI, pancreatic and liver conditions and provides care for complex treatments such as liver and auto-liver transplants. Chronic kidney diseases, kidney transplants (including SWAP and ABO-incompatible transplants), and preparing for/dialysis are treated with the maximum degree of expertise, as is urological expertise with a special focus on both adult and paediatric urological care. Fortis Escorts also specialises in advanced spine surgeries, complex joint replacements, sports injury management, and tricky arthroscopic procedures, performed as per global standards by some of the most skilled surgeons and a team of well-qualified physicians, assisted with state-of-the-art technology.

Fortis Escorts also offers a comprehensive service in Internal Medicine, Diabetology, Oncology, Endocrinology, Neurology, Neurosurgery, Pulmonology, Sleep Medicine, Minimal Access Surgery, Bariatric Surgery, Vascular Surgery, Critical Care Medicine, General Surgery, ENT, Dietetics, and Ophthalmology.

The hospital is home to four prominent centres of excellence:

- Fortis Escorts Heart Institute

- Fortis Escorts Liver & Digestive Diseases Institute
- Fortis Escorts Kidney & Urology Institute
- Fortis Escorts Bone & Joint Institute

ADVANCED TECHNOLOGY

At Fortis Escorts Heart Institute in Okhla, New Delhi, digitisation is an important part of what the care they offer. The hospital makes a point of combining high-quality medical treatment with state-of-the-art tools of the trade. Here are a few of the key technologies they utilise:

3D Echocardiography Machines: These machines generate detailed three-dimensional images of the heart, so that doctors are better able to recognise heart problems early and accurately. A life support system so potent that it is employed when a person's heart or lungs are failing badly.

Advanced Cardiac Catheterisation Labs: These labs are where doctors work to do delicate procedures, such as angioplasty and TAVR, more comfortably for the patient and with quicker recovery.

State-Of-The-Art Imaging: With state-of-the-art MRI and CT scan equipment, the hospital superbly ensures that patients receive the correct diagnoses promptly and clearly.

EUS and Capsule Endoscopy: These are how doctors get an up-close view of what is going on in the digestive system non-invasively and in great detail.

Endobronchial Ultrasound (EBUS): This state-of-the-art equipment assists in assessing lung and even breathing problems with accuracy.

OCT & IVUS: With these, doctors can see inside blood vessels and better understand heart conditions, helping to determine the best treatment.

Being at the forefront of the latest medical technology gives Fortis Escorts Heart Institute the desired competitive edge for world-class cardiac and overall care.

ACCREDITATIONS

Fortis Escorts Heart Institute is now a symbol of a commitment to excellence and quality and is recognized amongst the top cardiac hospitals in the world.

NABH Accreditation: Our commitment towards superior quality patient care and safety is demonstrated by this accreditation by the National Accreditation Board for Hospitals & Healthcare Providers.

NABH Certified Nursing Excellence: Our nurses have won an award for excellence because they never stop caring.

NABL Accreditation: Our Labs are accredited by NABL, the National Accreditation Board for Testing and Calibration Laboratories, which are equipped to guarantee the quality and reliability in all your diagnostic needs.

Green OT Certified

NABH Accredited Blood Bank

AWARDS AND RECOGNITIONS

- **Best Private Cardiac Hospital in India** (The Week Magazine, 2014, 2015, 2016, 2018, 2020-2023, 2024)
- **Best Cardiology Hospital** (Times Health All India Critical Care Hospital, 2018, 2021-2024)
- **Best Gastroenterology & Hepatology Hospital** (Times Health All India Critical Care Hospital, 2024)
- **Best Hospital for Emergency** (Times Health All India Critical Care Hospital, 2024)
- **Green OT Certification** (Bureau Veritas, France, since 2016)
- **Best Heart Care Centre in North India** (Global Healthcare Excellence Awards, 2013)
- **Gold Award in Healthcare Delivery Brand** (IHW Awards, 2020)
- **Best Hospital in Cardiology** – National (Economic Times Healthcare Awards, 2021, 2023)
- **AHPI Award for Excellence in Healthcare** (2021)
- **Best Interventional Cardiology & Cardiac Surgery Award** (Medical Value Travels, 2019, 2023)
- **Excellence in Cardiac Sciences** (ABP Healthcare Leadership, 2019)

KEY FINDINGS

I had an insight into how multi-departmental coordination works at Fortis Escorts Heart Institute during my internship. I gained hands-on experience by participating in audits and data collections, real hands-on hospital work, not just classroom.

The three major categories that I pursued in learning were Medication Errors, Medication Management, and Non-Invasive Ventilation (NIV). From there, I also learned how important the role can be in EMR, digital health initiatives like Electronic Medical Record (EMR) optimization, patient safety, and error prevention.

Medication Error Audit

In this study, I reviewed some Medication Administration Records (MARs) of critical and non-critical areas. As I cycled through the records, I found some common problems such as:

- Prescriptions without dates and times
- Signatures were not in the MAR, nor signed by nursing
- Some transcription sheets were missing in some cases

Although these documentation deficiencies appear innocuous, they may have lifesaving ramifications for the patient, especially during a crisis in busy hospital settings.
I then found that the non-essential areas were the ones with more of those errors, largely owing to the high workload.

Medication Management Audit

During this audit, I followed the entire cycle of medication: when a patient is admitted, when the doctor writes the prescription, the pharmacy indents, and finally, when the patient takes the medicine.
The full process should be in the span of 1 hour if all goes well, but I have seen delays from 3–5 hours, especially in the non-critical region. Delays of this kind can have implications for patient clinical care, particularly for drugs with a time-critical nature.
All of this has opened my eyes to the importance of the synchronization between doctors, nurses, and pharmacy staff in getting people their care on time.

NIV Clinical Audit

From the NIV audit, I also collected details of recipients of NIV in the ICU and on the ward. The contrast of the critical and non-critical zones was very easy to discern:

• ICU staff members were well-trained, knew the protocols, kept adequate monitoring of patients, and documented everything following the rules.

• Onwards, many staff were unclear as to the indications of NIV, monitoring, and escalation; documentation was frequently insufficient

As a result, patients fared better in ICUs than in wards, where complications were a little more common because of worse monitoring. That opened my eyes to how much of it was due to a lack of training and strong supervision in non-critical areas.

EMR Implementation

When I was watching documents in all departments, I was instinctively frustrated that something went wrong if it was a manual time book. EMR can address many of these challenges by:

• Speeding up and improving documentation

• Providing access in real time to patient information

• Limiting human error in the form of missing signatures or illegible handwriting

• Assisting in tracking the turnaround time of medications more efficiently

But I also saw that implementing EMR needs to come with staff training and technical support for everyone to feel comfortable using it.

CONCLUSIVE LEARNING

I came away from these audits with the big lesson that your safety is not only in the quality of your medical care, but also in appropriate paperwork, employee vigilance, and team unity. Critical areas such as ICUs are well supported and monitored, but non-critical areas require more focus, training, and system fixes to rise to those levels.

RECOMMENDATIONS

- Offer ongoing staff education on documentation, medication safety, and non-invasive ventilatory techniques.

- Apply standardized documentation tools and checklists to every area.

- Encourage greater collaboration by getting the doctors, nurses, and pharmacy teams to communicate better.

- EMR system to be implemented: How it was phased in from urgent departments to complete hospital ownership.

- Oversee sustained improvements and progress against ongoing audits.

PROJECT WORK

An Audit to Identify and Analyse Medication Errors in Critical and Non-Critical Areas

Introduction

During my internship at **Fortis Escorts Heat Institute, New Delhi**, I had the opportunity to delve into the occurrences of medication errors within hospital environments. It's a common misconception that the process of medication administration is seamless after prescriptions are written; however, there are multiple stages where errors can occur, sometimes endangering patient safety.

As stated by the **World Health Organization (WHO):**

"*A medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer."*[1]

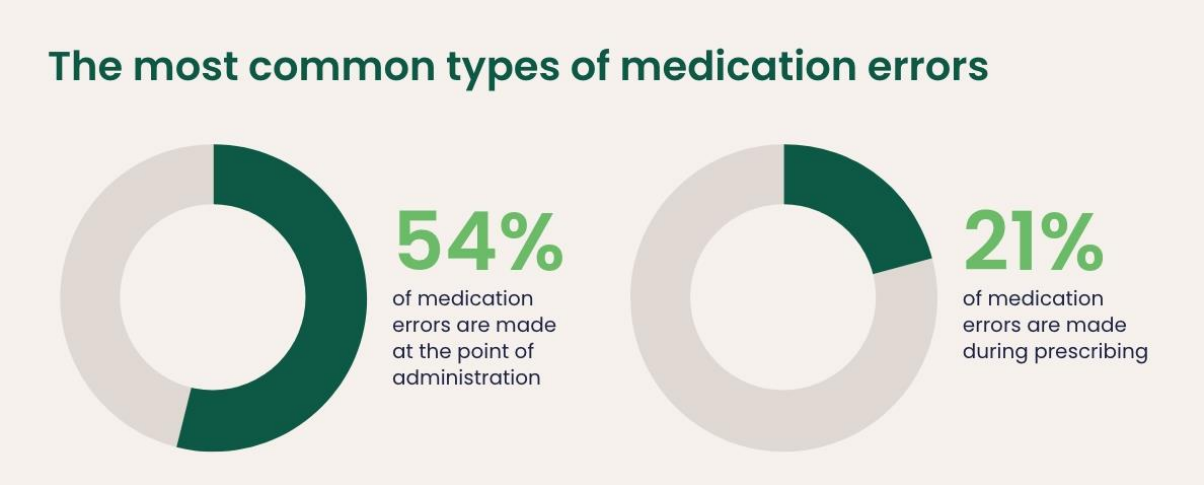
Types of Medication Errors (With Examples)

Type of Error	Meaning	Example
Prescribing	Wrong drug, dose, or route ordered	Antibiotic overdose was prescribed accidentally
Transcription	Mistake while copying the doctor's order	Writing 10mg instead of 1.0mg
Dispensing	The pharmacy gives the wrong medication or strength	Giving Paracetamol 500mg instead of 650mg
Administration	Given to the wrong patient or at the wrong time	IV given too fast when it should be slow
Monitoring	Missing signs of adverse reactions	Ignoring low potassium after diuretic use
Documentation	Incomplete or missing medication records	The nurse forgot to sign after giving medication

[1] https://cdn.who.int/media/docs/librariesprovider2/country-sites/medication-error-wpsd-final.pdf?sfvrsn=e5853e2a_1&download=true

Common Medication Errors

According to global statistics, most medication-related errors occur during the administration phase, making up about 54% of all incidents. This suggests that a significant portion of mistakes happen at the point where medications are given to patients, often due to factors like incorrect timing, wrong dosages, or administering to the wrong individuals.



Some Other common mistakes to be aware of:

✓ **Prescribing Mistakes** – In hectic environments, physicians might occasionally prescribe the wrong medication, dosage, or delivery method.

✓ **Monitoring Issues** – Side effects or adverse reactions might not be promptly identified.

✓ **Documentation Problems** – Missing signatures or incomplete patient records can lead to misunderstandings and potentially missed doses.

Challenges in Identifying Errors

From my experience, not every mistake is easy to spot. Many errors go unnoticed due to:

• Insufficient access to quality data

• Hesitance among staff to report minor incidents

• Certain errors, like transcription mistakes, may remain hidden unless records are thoroughly examined

Moreover, the design of medications can also lead to mistakes. For example, similar-looking ampules can confuse staff. A notable incident in Egypt involved a patient receiving adrenaline instead of midazolam during a procedure, resulting in significant complications.

Global Observations and Important Insights

- **Administration Errors:**
  • These encompass wrong dosages, incorrect methods, or administering to the wrong patient.
  • Around 22% of patients worldwide face administration-related issues.
  • NHS data indicates that 45% of claims settled from 2015 to 2020 were due to administration errors.
- **Prescribing Errors:**
  • These errors account for as much as 53% of medication mistakes (WHO data).
  • Causes can include incomplete prescriptions, inappropriate drug choices, delays in issuing prescriptions, or missing allergy information.

For instance, NHS data from 2015 to 2020 recorded 172 claims related to incorrect prescriptions for antibiotics, antivirals, and antifungals, often due to overlooked allergy checks or unadjusted dosages based on patients' weight or kidney function.[2]

RATIONALE

Medication safety is a key part of patient care and healthcare quality. This is especially true in high-acuity environments, such as Fortis Escorts Heart Institute in New Delhi. This centre has 310 beds and is known for handling complex cardiac and multi-speciality cases. Despite

[2] https://sla.org/news/688661/Medication-Errors.htm

improvements in protocols and accreditation standards, medication errors still present significant risks. These errors often arise from systemic issues rather than from individual mistakes.

Research indicates that many medication errors, particularly those related to prescribing, administration, and documentation, often go unreported or remain unnoticed, especially in busy tertiary care settings. Global studies reveal that up to 54% of medication errors happen during administration and 21% during prescribing. Critical care units are more likely to experience these errors due to high patient dependency, emergencies, and complex drug regimens.[3]

At Fortis Escorts, multidisciplinary teams carry out high-risk procedures. Strict adherence to medication protocols is essential. However, early observations identified recurring errors, including:

- Missing nursing signatures in medication records

- Lack of transcription charts

- Delayed or incomplete documentation

- Illegible prescriptions not written in capital letters

- Missing date and time on prescriptions

These issues compromise treatment continuity, delay interventions, and increase the chance of adverse drug events. They go against patient safety standards set by the NABH and WHO.

Given the institute's strong reputation, it is important to conduct a structured, evidence-based clinical audit to:

- Systematically identify medication errors in critical and non-critical care areas

- Examine contributing factors, such as documentation gaps, communication issues, and system inefficiencies[4]

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[3] https://www.pharmaceuticalpress.com/resources/article/what-are-the-most-common-types-of-medication-errors/

[4] https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-019-4481-7

- Provide actionable insights to improve medication safety practices

This audit will support ongoing quality improvement efforts at Fortis Escorts while following global best practices. It will promote a non-punitive, system-focused approach to preventing medication errors. The results will help guide interventions like staff training, process standardization, and technology integration, such as Electronic Medical Records. Ultimately, this will improve patient safety and healthcare outcomes.

TABLE OF LITERATURE REVIEW

S. No.	Author(s) & Year	Study Title / Source	Study Design / Setting	Key Findings

1	**Wittich et al. (2014)** PMID: 24981217[5]	*Medication errors: An overview for clinicians.* Clinic Proc.	Review Article	Major cause of morbidity/mortality: high-risk drugs and polypharmacy increase errors; legal consequences.
2	**Patel et al. (2016)** PMID: 27843792[6]	*A Study of Medication Errors in a Tertiary Care Hospital*	Prospective observational (Ahmedabad)	36% error rate; prescription errors 65%; assessed DDIs and prescription rationality.
3	**Sasmal et al. (2023)** DOI: 10.52403/ijhsr.20230516[7]	*Impact of Medication Errors and Their Severity*	Retrospective observational (Kolkata)	Identified prescribing, dispensing, admin, and indenting errors; implemented pharmacist-led training and reporting.
4	**Salar et al. (2020)** DOI: 10.1016/j.ijans.2020.100235[8]	*Preventing Medication Errors in Hospitals*	Qualitative (Iran)	Prevention themes: "acting professional" and "technical strategies."
5	**Anderson & Webster (2001)** DOI: 10.1046/j.1365-2648.2001. 01820.x[9]	*A Systems Approach to Medication*	Conceptual review	Advocates non-punitive, systems-level solutions; incident reporting.

[5] https://pubmed.ncbi.nlm.nih.gov/24981217/
[6] https://pubmed.ncbi.nlm.nih.gov/27843792/
[7] https://www.ijhsr.org/IJHSR_Vol.13_Issue.5_May2023/IJHSR16.pdf
[8] https://www.mendeley.com/catalogue/49dc11c5-499f-36b8-833f-0868f40ec421/
[9] https://pubmed.ncbi.nlm.nih.gov/11442680/

		Error Reduction		
6	**ICU Umbrella Review (2022)** MDPI Healthcare[10]	*Medication Errors in ICUs: Control Measures*	Umbrella review (ICU settings)	Educational interventions, pharmacist-in-ward, reconciliation reduce ICU errors
7	**Saudi Systematic Review (2024)** Medicina[11]	*Medication Errors in Saudi Arabian Hospitals*	Systematic review (post-2019 Saudi)	Wrong-dose and prescribing errors are frequent; recommends evidence-based strategies.
8	**Indian Prescribing Error Study (2019)** IJBCP[12]	*Prescribing Errors in Inpatients in North India*	Prospective observational (Kerala)	Focus on inpatient prescribing errors; it fills the Indian tertiary care context.

AIM

[10] https://www.mdpi.com/2227-9032/10/7/1221
[11] https://pubmed.ncbi.nlm.nih.gov/39336452/
[12] https://www.ijbcp.com/index.php/ijbcp/article/view/3493/2545

To identify, compare, and analyse medication errors in critical (ICU) and non-critical (ward) areas of a tertiary care hospital

OBJECTIVES

- To identify medication errors in critical (ICU) and non-critical (ward) areas.
- To explore common causes of medication errors.
- To compare the errors between critical and non-critical units.

METHODOLOGY

Study Design

A **Descriptive, cross-sectional observational audit** was conducted to identify and analyse medication errors among inpatients in both critical (ICU) and non-critical (ward) areas of a hospital.

Study Setting

The study was conducted in both **critical care areas (ICU 1 and ICU 2) and non-critical care wards (Ward 3, 3A, Ward 4, and Ward 4A)** of a hospital.

Study Duration

The audit was conducted over **60 days** during the summer internship.

Study Population

IPD Patient receiving medications in selected critical and non-critical areas of the hospital.

Sample Size

A total of **248 patient records** was reviewed during the study period.

$$n = \frac{(Z^2 * p * (1 - p))}{e^2}$$

Where:

n = required sample size

Z = Z-value (standard normal deviate for 95% confidence level = 1.96)

p = estimated prevalence of medication errors (assumed 0.5 for maximum sample size)

e = desired margin of error (5% = 0.05)

Calculation:

$n = (1.96^2 \times 0.5 \times 0.5) / 0.05^2 = 384.16$

Since the total population (N) is 700, the **finite population correction** is applied using the formula:

$$n = \frac{n0}{1+\frac{(n0-1)}{N}}$$

Substituting values:

n = 384.16/1+((384.16-1)/700) = 384.16/1+0.5474 = 384.16/1.5474 = 248.2 (248 approx.)

AREA TYPE	UNIT	SAMPLE
CRITICAL	ICU 1	65
CRITICAL	ICU 2	20
NON-CRITICAL	Ward 3	42
NON-CRITICAL	Ward 3A	39
NON-CRITICAL	Ward 4	42
NON-CRITICAL	Ward 4A	40
TOTAL		**248**

Sampling Technique

Purposive (Convenience) sampling was used to select Medication Administration Charts of patients from both critical and non-critical care areas, based on their availability, completeness, and relevance to the study.

Data Collection Tools

A structured **Audit checklist** (ANNEXURE 1) was used to record observed medication errors. The checklist ensured uniform data collection for error identification, classification, and analysis.

Data Collection Method

MAR was reviewed daily in both critical and non-critical areas of the hospital. Errors were identified in real-time during medication administration rounds by examining patient records. Data collection was conducted systematically using a structured audit checklist.

Ethical Considerations

- Patient confidentiality and privacy were strictly maintained throughout the study.
- No personal identifiers, such as patient names, registration numbers, or other sensitive information, were recorded or disclosed.
- Data collection was carried out with prior approval from the hospital's quality department and under the supervision of authorized personnel.
- The study was conducted solely for academic and quality improvement purposes, ensuring compliance with ethical standards.

Inclusion Criteria

- Inpatients were admitted to both critical care units (ICU 1, ICU 2) and non-critical wards (Ward 3, 3A, 4, 4A) during the study period.
- Patients are receiving medication as part of their treatment.
  Medication charts and treatment records were complete and available for review.

Exclusion Criteria

- Outpatients or day-care patients.

- Patients were discharged within 24 hours of admission.
- Cases where consent for accessing records was not granted.

KEY FINDINGS

Sample Audited	248	
Parameters	**Non-compliance (in number)**	**Non-compliance (in %)**

Prescription in Capital was not mentioned	119	48%
Transcription sheet missing	83	33%
Prescription without Date/Time	128	52%
Nurses' Sign missing on MAR	44	18%

Parameters	Prescription in Capital was not present	Transcription sheet missing	Prescription without Date/Time	Nurses' Sign missing on MAR
CRITICAL AREAS	12	0	8	2
NON-CRITICAL AREAS	89	72	94	42

List Of Major Errors Identified

- Missing or Illegible Signatures by Nursing Staff in Medication Administration Records.
- Absence of Transcription Charts in Patient Files.
- Delay in updating the Medication Administered Records (MAR).
- Incorrect Or Unclear Documentation of Medicine Names in the MAR by Prescribing Doctors.
- Omission of the Prescription Date by Doctors on Medication Orders.

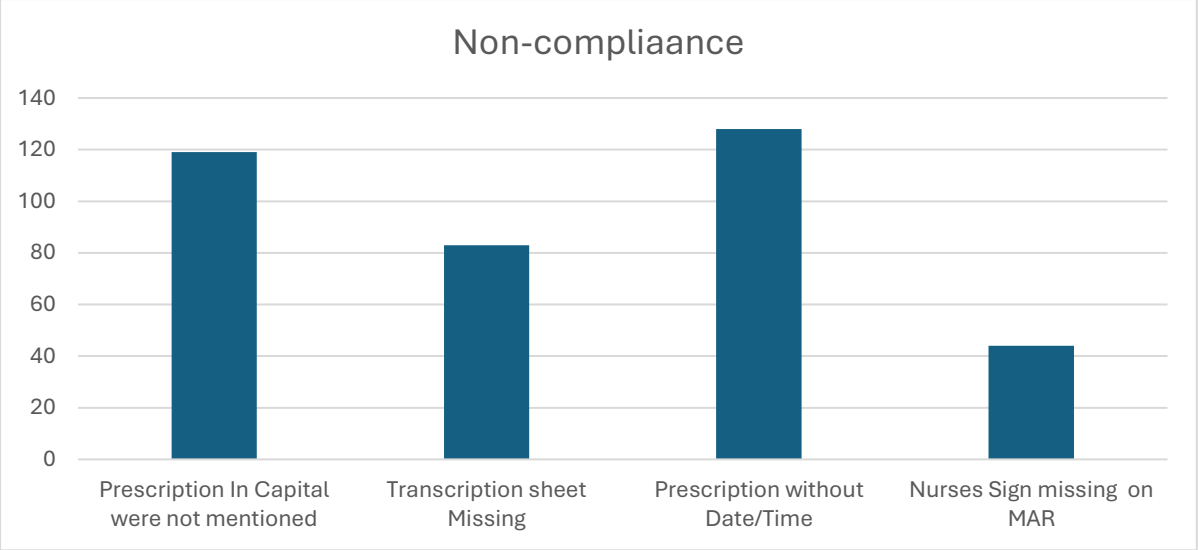
A comparison showed a marked difference in documentation in critical care areas (ICUs) compared with non-critical care units (wards):

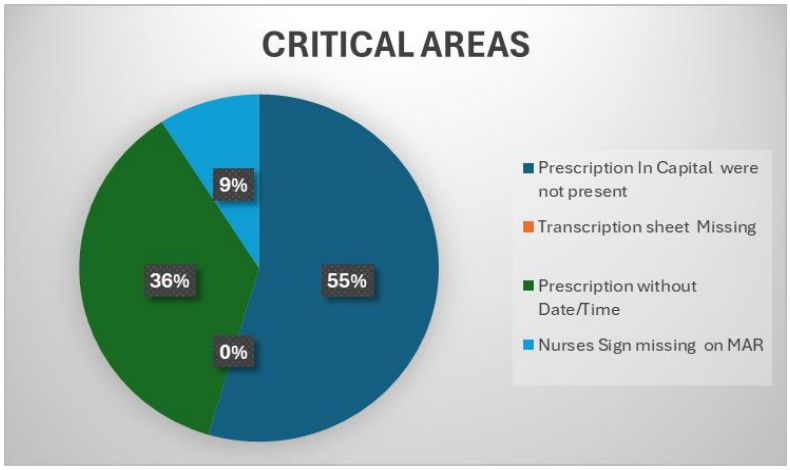
Type of Non-Compliance	Critical Areas	Non-Critical Areas
Prescription in Capital was not mentioned.	Maximum (8%)	Very High (90%)

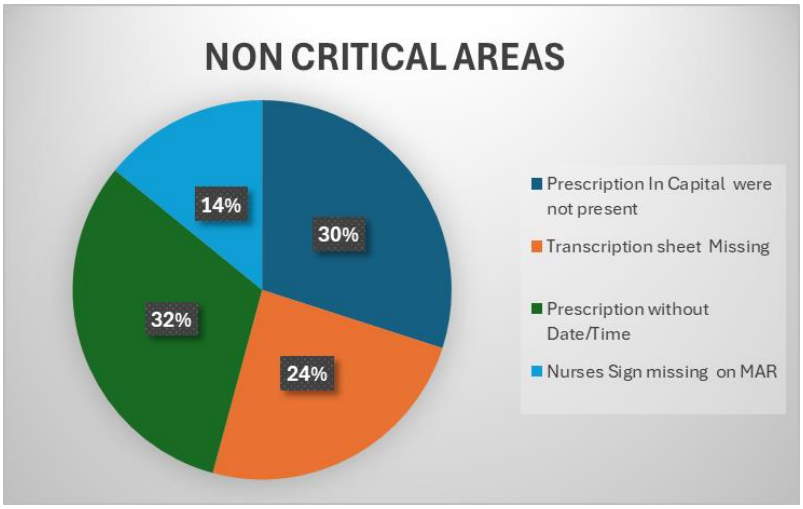
Type of Non-Compliance	Critical Areas	Non-Critical Areas
Transcription charts missing	Low (~2%)	High (~70%)
Prescription without Date/Time	Low (~10%)	High (~95%)
Nursing signatures are missing on the MAR	Infrequent (2%)	Moderate (45%)

- Intensive Care and Critical Care Areas showed better compliance, possibly because of better supervision, skill mix of staff, and compliance with standard safety practices.
- General Wards demonstrated a significant level of not using checklists, suggesting system-wide deficits regarding adherence to documentation, staff education, and supervision.

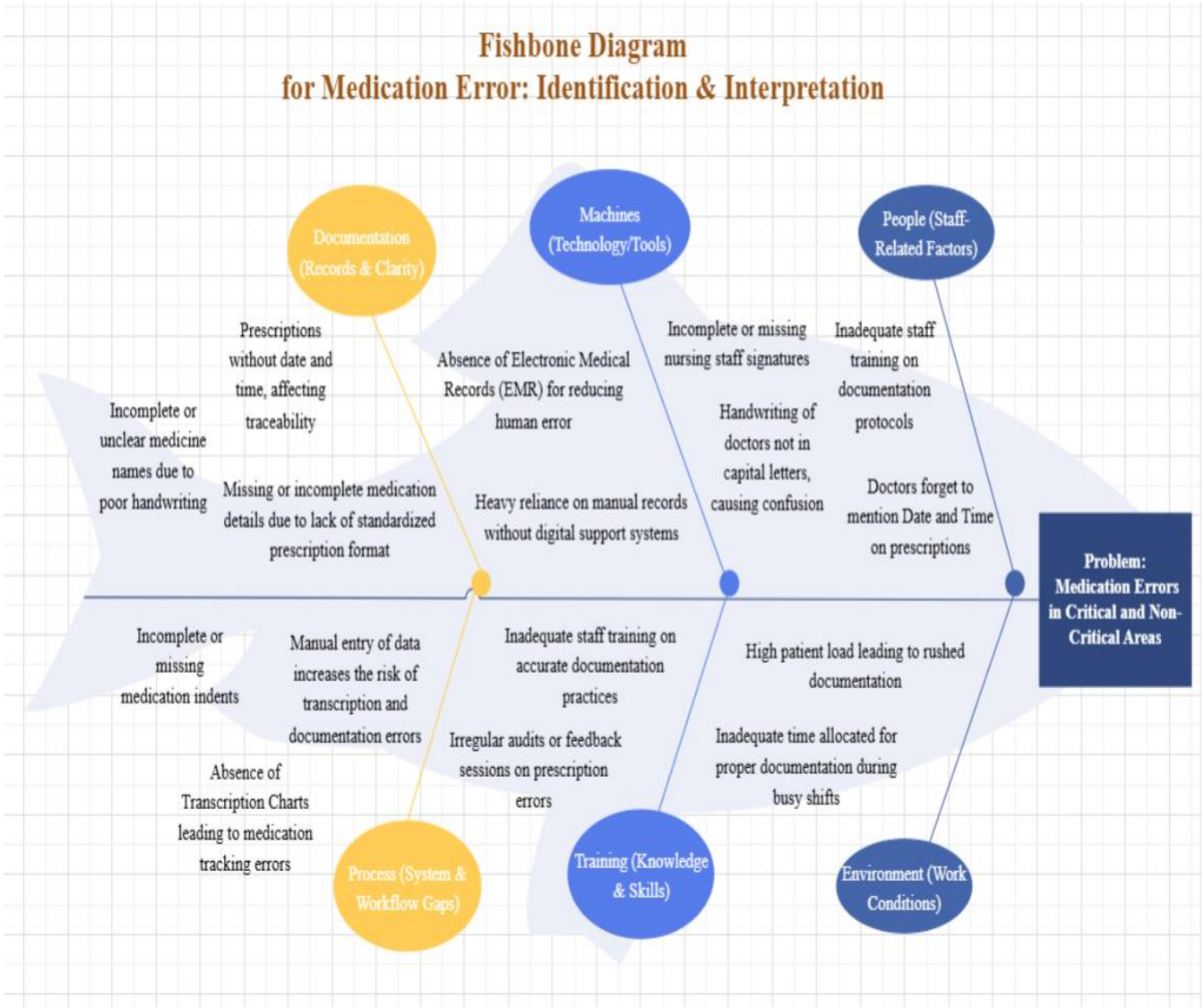
GRAPHICAL REPRESENTATION


Non-compliaance
140
120
100
80
60
40
20
0
Prescription In Capital were not mentioned
Transcription sheet Missing
Prescription without Date/Time
Nurses Sign missing on MAR


CRITICAL AREAS
9%
36%
55%
0%
Prescription In Capital were not present
Transcription sheet Missing
Prescription without Date/Time
Nurses Sign missing on MAR


NON CRITICAL AREAS
14%
30%
32%
24%
Prescription In Capital were not present
Transcription sheet Missing
Prescription without Date/Time
Nurses Sign missing on MAR

FISHBONE ANALYSIS



RECOMMENDATION

1. **Mandatory Staff Training**

   Organize periodic training programs for doctors, nurses, and pharmacists on safe medication practices and proper documentation

2. **Implement EMR (Electronic Medical Records)**

   Digital documentation can reduce handwriting errors, improve record completeness, and offer real-time alerts for wrong doses or drug interactions.

3. **Strengthen Medication Audits**

   Conduct regular audits (according to the MoM NABH 6th Standards) to identify, report, and correct medication errors across critical and non-critical care areas.

4. **Promote a Supportive Reporting Culture**

   Encourage staff to report errors or near-misses in a constructive environment on system improvement rather than individual punishment.

5. **Focus on Critical Areas**

   Critical care units (ICUs) require stricter supervision, and process checks due to higher patient risk and error potential.

CONCLUSION

The results of the study demonstrated the incidence of drug errors in critical and non-critical areas of a 310-bed tertiary care hospital. The most common incorrect form-filling errors were a lack of staff signature, missing transcription charts, incomplete medication records, and illegibility of prescriptions. These results indicate deficiencies in the documentation, communication, and implementation of standardized operating procedures.

‘Wrong drug, wrong time’: medication errors continue as a substantial risk to patient safety. These errors can be greatly minimized by strengthening systems and acting through systematic interventions, including regular auditing, continuous workforce training, and standardized documentation. A team effort by doctors, nurses, pharmacists, and quality teams is essential to fostering a safer medication system and enhancing patient care collectively.

LIMITATIONS

This audit provides valuable data on the topic of medication errors in critical as well as non-critical care; however, several limitations must be noted:

1. Single-Centre Study

This was a study in a single tertiary centre and, thus, might not generalize to other healthcare systems and institutions with alternative mandates and protocols in place.

2. Short Study Duration

The audit was conducted over a rather short period of 60 days, which might not capture changes in long-term trends and sporadic deviations in the number of medication errors observed over time.

3. Purposive Sampling

A convenience purposive sample was used based on the records available and complete. This could cause selection bias by eliminating missing or incomplete documentation.

4. Focus on Documentation-Based Errors

The most common errors noted were those apparent by documentation review or observation. Errors that occurred but were undocumented or not identifiable from the chart review may have been missed.

5. Limited Error Categories Analysed

The audit revealed errors in prescribing, transcription, and administration, but could have underestimated the extent of other types of medication errors, such as dispensing, storage, and monitoring errors.

6. Observer Dependence and Human Error

Data collection relied on manual observation, which may lead to human mistakes and subjective interpretation, even with the use of structured checklists.

7.No Clinical Outcome Assessment

The degree to which identified medication errors were clinically significant (e.g., patient harm or adverse drug events) was not consistently measured in this audit.

8. Potential Underreporting Attributable to Fear of Guilt

Although a non-punitive learning culture was emphasized, some staff may still have underreported or withheld certain errors, especially in high-risk departments such as the ICU.

OPERATIONAL DEFINITIONS

1. Medication Administration Chart

The Medication Administration Record, commonly referred to as a drug chart, is an essential legal document that tracks the medications administered to patients by healthcare providers in a healthcare setting.

2. IPD

The Inpatient Department (IPD) is where patients are admitted for longer stays. The Inpatient Department, or IPD for short, is a part of a hospital where individuals stay for a longer duration, getting medical attention, tests, treatments, and overall care.

3. EMR

An Electronic Medical Record, or EMR, serves as the digital version of a patient's physical chart, capturing their medical and treatment history from one healthcare facility, tailored specifically for the providers there.

4. Transcription

This is known as the correct translational interpretation of oral or written drug prescription issued by a doctor. This step is important in drug administration in the patient history or medication sheet.

5. Prescription

A prescription is an official order written or electronic for the compounding, dispensing, or administering of drugs, medicines, or for the use of a medical treatment for a particular patient.

6. Medication Management

This includes an organised process of purchase, storage, selection, prescribing and transcribing, dispensing, preparation, administration, monitoring, and documentation of the effects of medicines. The objective is to promote the safe, effective, and responsible use of drugs within healthcare systems.

7. Critical Care Areas

These dedicated, hospital-based units, provide close monitoring and complex life support for critically ill or unstable patients who require constant oversight and specialized medical equipment.

8. Non-Critical Care Areas

These are for people with stable or slightly less serious medical needs. They do need to have some level of routine care, treatment, support or observation, but not critical care or sustained life support.

9. ICU (Intensive Care Unit)

The ICU is a specialized section of the hospital that provides continuous monitoring, life support, and complex medical management for critically ill or unstable patients who require constant attention and advanced care.

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ANNEXURES

ANNEXURE 1

MEDICATION ERROR AUDIT							
S. NO.							
UHID							
AREA TYPE							
LOCATION							
SPECIALITY							
PRESCRIPTION IN CAPITAL WAS NOT PRESENT.							
TRANSCRIPTION SHEET MISSING							
WITHOUT/WRONG ROUTE & DOSE, UNIT							
DOSAGE FORM NOT/ WRONG MENTIONED							
FREQUENCY NOT/ WRONG MENTIONED							
PRESCRIPTION WITHOUT DATE/TIME							
NURSES' SIGN MISSING ON MAR							

ANNEXURE 2

Audit - Medication Management					
Sl. No.					
Patient Name & UHID					
Consultant Name					
Date of admission					
Time of admission					
Time of initial assessment by the Doctor					
Time of Prescription of Medication					
Time of Medication Indent					
Time of Medication Administration					
Remarks					

ANNEXURE 3

CLINICAL NIV AUDIT					
PARAMETERS TO BE AUDITED					
Patients Demographics					
Unique Patient ID					
Age					
Sex					
Comorbidities					
Location					
Date data taken on.					
1. Admission Details					
Date of admission					
Source of admission (ED, Wards, Transfers)					
Primary Diagnosis					
Indications for NIV (Tick all that apply)					
COPD					
Cardiogenic Pulmonary Edema					
Hypoxemic respiratory failure					
Post-extubation support					
Immunocompromised state					
Others_____					
2. Pre-NIV Clinical Parameters					
GCS (Glasgow Coma Scale)					
Respiratory Rate (RR)					
Heart Rate (HR)					
Blood Pressure					
Arterial Blood Gases (ABG)					
pH					
pCO2					
pO2					
HCO3					
SpO2					
3. NIV Settings and Applications					
Date/Time of NIV Initiation					
Type of Device Used (BiPAP/CPAP)					
Interface Used (Full Face Mask, Nasal Mask, Helmet)					
Initial settings:					
IPAP					
EPAP					
FiO2					
Duration of daily usage (Hours/Day)					

Tolerance to NIV (Well Tolerated/Poorly Tolerated)					
Complications (e.g., Skin breakdown, Gastric Distension)					
4. Monitoring and Response					
ABG within 1-2 hours post-NIV initiation					
Respiratory Rate Change (Baseline Vs Post 1-2 hours)					
Any Escalation in support (Increase in pressures, switch to invasive ventilation.					
Clinical Signs of Improvement/Deterioration					
Any need for Sedation or Restraint					
5. Outcomes Metrics					
NIV Success (No need for intubation)					
NIV Failure (intubation required)					
Time from NIV start to Intubation (if Applicable)					
ICU length of Stay					
Hospital Length of Stay					
In Hospital Mortality					
Discharge Disposition					
6. Guideline Adherence					
Was patient selection appropriate based on local/International guidelines?					
Was ABG monitoring done within 1-2 Hours?					
Was Escalation/De-escalation Timely?					
Was there a documented NIV Protocol					
7. Optional Data Point (For Extended Audit)					
Time of day NIV started (in-hours vs out-of-hours)					
Staff involved in initiation (Respiratory Team, ICU, ED, etc.)					
NIV Training Status of Initiating Staff					
Documentation of NIV Goals (Comforts Vs Curative Intent)					
Remarks -					

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